3. Subbasin Assessment–Pollutant Source Inventory

This chapter describes the point and nonpoint pollutant sources within the King Hill-C.J. Strike Reservoir watershed. The nonpoint source descriptions are not intended to be specific by source. Rather, they are a description of the general processes whereby nonpoint source pollutants are delivered to the water bodies of concern.

3.1 Point Sources

The Glenns Ferry wastewater treatment plant (WWTP) is the only municipal National Pollution Discharge Elimination System (NPDES) permitted facility located in the King Hill-C.J. Strike subbasin. Table 37 shows the facility details.

Table 37. NPDES System-permitted facilities in the King Hill-C.J. Strike Reservoir subbasin

Facility	Design Capacity (MGD)[1]	Permit Expiration Date	Receiving Water
City of Glenns Ferry (Permit # ID-002200-4)	0.44	November 24, 2008	Snake River

[1]Million gallons per day

RCRA and CERCLA Sites

There are several sites in the King Hill-C.J. Strike Reservoir subbasin that must comply with the federal Resource Conservation and Recovery Act (RCRA) or the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), commonly called Superfund. Appendix L shows a list of the facilities that have EPA identification numbers, although many of the sites are no longer active.

Nonpoint Source Pollutant Transport

The following descriptions of pesticides, nutrient and sediment transport are not intended to be specific by source; they are descriptions of the general processes whereby nonpoint source pollutants are delivered to the water bodies of concern. More detailed descriptions of locations and potential sites for improvement will be located in the final TMDL implementation plan.

Pesticides

The erosion of pesticide-laden soil associated with runoff is the most common transport mechanism for introducing pesticides into surface waters. Pesticides can be moved by runoff when they are either dissolved in the water or bound to eroding soil particles. Pesticide

residues in surface waters can cause injury to crops, livestock, or humans if the contaminated water is used downstream and also can lead to contaminated groundwater.
When a pesticide is introduced into the environment, whether by application, disposal, or a spill, many processes can influence its transport. These natural and anthropogenic processes determine the ultimate fate of the pesticide by affecting its persistence and movement in the environment. The processes that affect the fate and transport dynamics of pesticides include adsorption, volatilization, leaching, photo, microbial and chemical degradation, and bioaccumulation. Once introduced into the environment, some pesticides may take more upwards of fifty years to completely degrade.

Phosphorus
Phosphorus is found naturally throughout the environment. It can be present as a constituent of certain rock types (silicious igneous rock) and in the mineral *apatite*. The environment itself can also be a factor in the phosphorus levels occurring within a region, due to the climate, pH of natural waters, and the presence of other substances that may adsorb or release phosphorus. However, there are also anthropogenic nutrient sources that greatly increase phosphorus levels over those found naturally: applied fertilizers in farming or landscaping, the duration and density of livestock grazing, the creation of artificial waterways and water levels through agricultural practices, and the presence of sewage and septic waste (treated and untreated) in the surface, subsurface, and ground water of a region often represent significant contributions to the phosphorus concentrations in an area.

Nitrogen
Nitrogen occurs in the environment in a variety of sources and forms. It can be present as a mineral constituent of certain rock types; as a result of the decomposition of plant and other organic material; in rainfall; as a component of agricultural or urban/suburban runoff; and as a constituent in treated or untreated wastewater from industrial, municipal, or septic discharges. In addition, the air is composed of about 80% nitrogen gas. Blue-green algae can use atmospheric nitrogen at the surface-water interface or the nitrogen dissolved in the water as a source of nitrogen to support growth. Since algae can use atmospheric nitrogen, reducing nitrogen in the water is not often targeted as a factor to achieve water quality improvements in water systems dominated by blue-green algae. Since reducing watershed-based sources of nitrogen is not usually a successful treatment option in these systems, total phosphorus reductions are often sought.

Sediment
The most common source of sediment in surface waters is erosion. Sediment may originate from natural causes, such as landslides, forest or brush fires, high flow events, or anthropogenic sources such as urban/suburban storm water runoff or erosion from roadways, agricultural lands, and construction sites. Sediment loads within the system are typically highest in the spring when high flow volumes and velocities result from snowmelt in the higher elevations.

The mass wasting (such as landslides) contribution of sediment loading in the King Hill-C.J. Strike watershed appears to be low. Surveys of the tributaries and the Snake River suggest that chronic loading is much more significant that acute loading.

3.2 Data Gaps

The best available data were used to develop the current subbasin assessment. The data were used to reach conclusions of support status and to, where necessary, develop defensible TMDLs. However, DEQ acknowledges there are additional data that would be helpful to increase the accuracy of the analyses. The data gaps that have been identified are outlined in Table 38.

Table 38. Data gaps identified during development of the King Hill-C.J. Strike Subbasin Assessment

Pollutant or Other Factor	Data Gap
Flow	Multiple years flow data for the upper, middle, and lower segments of the §303(d) listed tributaries to the Snake River Horizontal flow velocities from river miles 510 to 520 (C.J. Strike Reservoir)
Biological (fish, macroinvertebrates, and aquatic plants)	Additional salmonid presence/absence information for the §303(d) listed tributaries, particularly for Ryegrass and Alkali Creeks The quantification of macrophytes and other coarse particulate organic matter, and their direct effects on water quality in the Snake River and C.J. Strike Reservoir.
Pesticides	Recent t-DDT and dieldrin data at multiple locations in C.J. Strike Reservoir
Sediment	Multiple years suspended sediment concentration data for the Snake River at King Hill and Indian Cove. Baseline substrate conditions in the Snake River between King Hill and Indian Cove (during a period when macrophyte growth is not at nuisance levels) Multiple year suspended sediment concentration data for the lower segments of the §303(d) listed tributaries to the Snake River Multiple years substrate particle size distributions for the upper and lower segments of the §303(d) listed tributaries to the Snake River
Dissolved Oxygen	Diurnal dissolved oxygen concentration in the Snake River and C.J. Strike Reservoir Additional TDG data from below C.J. Strike Dam

Where viable, steps should be taken to fill the data gaps. Planned efforts to do so will be further outlined in the TMDL implementation plan. The information developed through these efforts may be used to revise the appropriate portions of the TMDL and determine and/or adjust implementation methods and control measures. Changes to the TMDL will not result in the production of a new TMDL document. Minor changes will be in the form of addenda to the existing document(s). More extensive changes will be in the form of supplementary documentation or chapter replacement. Wherever practical, the goal is to build upon rather than replace the original work. The schedule and criteria for reviewing new data will be addressed in the TMDL implementation plan. The opportunity to revise the TMDL and necessary control measures is consistent with current and developing EPA TMDL guidance, which emphasizes an iterative approach to TMDL development and implementation. However, any additional effort on the part of DEQ to revise the TMDL or implementation plan and control measures must be addressed on a case-by-case basis as additional funding becomes available.